

*What Is Claimed Is:*

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding any of the amino acid sequences of the polypeptides shown in Table 1; or

(b) a nucleotide sequence complementary to any of the nucleotide sequences in (a).

2. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence identical to a nucleotide sequence in (a) or (b) of claim 1 wherein said polynucleotide which hybridizes does not hybridize under stringent hybridization conditions to a polynucleotide having a nucleotide sequence consisting of only A residues or of only T residues.

3. An isolated nucleic acid molecule comprising a polynucleotide which encodes the amino acid sequence of an epitope-bearing portion of a polypeptide having an amino acid sequence in (a) of claim 1.

4. The isolated nucleic acid molecule of claim 3, wherein said epitope-bearing portion of a polypeptide has an amino acid sequence listed in Table 2.

5. A method for making a recombinant vector comprising inserting an isolated nucleic acid molecule of claim 1 into a vector.

6. A recombinant vector produced by the method of claim 5.

7. A method of making a recombinant host cell comprising introducing the recombinant vector of claim 6 into a host cell.

8. A recombinant host cell produced by the method of claim 7.

09765272-012201

9. ~~A method of producing a polypeptide encoded by the nucleic acid molecule of claim 1 comprising culturing the host cell of claim 8 under conditions favoring expressing the heterologous polypeptide.~~

10. A polypeptide produced according to the method of claim 9.

11. An isolated polypeptide comprising an amino acid sequence at least 70% identical to a sequence selected from the group consisting of an amino acid sequence of any of the polypeptides described in Table 1.

12. An isolated polypeptide antigen comprising an amino acid sequence of an *S. pneumoniae* epitope shown in Table 2.

13. ~~An isolated nucleic acid molecule comprising a polynucleotide with a nucleotide sequence encoding a polypeptide of claim 9.~~

14. An isolated antibody that binds specifically to a polypeptide of claim 11.

15. A hybridoma which produces an antibody according to claim 14.

16. A vaccine, comprising:

(1) one or more *S. pneumoniae* polypeptides selected from the group consisting of a polypeptide comprising an amino acid sequence identified in Table 1, or a fragment thereof; and

(2) a pharmaceutically acceptable diluent, carrier, or excipient; wherein said polypeptide is present, in an amount effective to elicit protective antibodies in an animal to a member of the *Streptococcus* genus.

17. A method of preventing or attenuating an infection caused by a member of the *Streptococcus* genus in an animal, comprising administering to said animal a polypeptide of claim 11, wherein said polypeptide is administered in an amount effective to prevent or attenuate said infection.

18. A method of detecting *Streptococcus* nucleic acids in a biological sample obtained from an animal involving assaying for one or more

09765272.012201

nucleic acid sequences encoding *Streptococcus* polypeptides in a sample comprising:

- (a) contacting the sample with one or more of the above-described nucleic acid probes, under conditions such that hybridization occurs, and
- (b) detecting hybridization of said one or more probes to the one or more *Streptococcus* nucleic acid sequences present in the biological sample.

19. A method of detecting *Streptococcus* nucleic acids in a biological sample obtained from an animal, comprising:

- (a) amplifying one or more *Streptococcus* nucleic acid sequences in said sample using polymerase chain reaction, and
- (b) detecting said amplified *Streptococcus* nucleic acid.

20. A kit for detecting *Streptococcus* antibodies in a biological sample obtained from an animal, comprising

- (a) a polypeptide of claim 12 attached to a solid support; and
- (b) detecting means.

21. A method of detecting *Streptococcus* antibodies in a biological sample obtained from an animal, comprising

- (a) contacting the sample with a polypeptide of claim 12; and
- (b) detecting antibody-antigen complexes.

add  
as

09765272-012201